Managing high-demand situations

PRISM seminar, Brussels, November 2003
COLFUN: Cognitive Load FUNctional Framework

- Functional model
  - Operator tasks in process control

- Mental load model
  - Cognitive task load operator
Functional model

Knowledge of plant

Operational goals & criteria

Controller knowledge

DA = Disturbance Assessment
DM = Decision Making
DC = Direction & Control

SA = Situation Awareness

Information transfer

Primary level

Secondary level

SA = Situation Awareness
DA = Disturbance Assessment
DM = Decision Making
DC = Direction & Control

Plant Process

sensors
actuators
Mental load model

[Diagram showing a cube with axes labeled 'level of information processing', 'time occupied', and 'task-set switches']
COLFUN framework

Knowledge of plant

Operational goals & criteria

Controller knowledge

Secondary level

Information transfer

Primary level

sensors

actuators

Plant Process
Seminar 1: Envisioning HD situations

Knowledge of plant

Operational goals & criteria

Controller knowledge

DA
DA
Secondary level

DM
DM

Information transfer

SA
SA
Primary level

DC
DC

sensors

actuators

Plant Process

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Seminar 2: Managing HD situations

Knowledge of plant

Operational goals & criteria

Controller knowledge

Secondary level

DA → DM

Primary level

SA → DC

Information transfer

Plant Process

sensors

actuators
Seminar 2: programme

Day 1
Presentations on:
  Alarm handling
  Crisis management
  Engineering design

Day 2
Workshops to elicit best practices on:
  Alarm handling
  Crisis management
  Engineering design
Seminar 2: results

Presentations and results are published on the PRISM web site (December 2003)

Best practices are added to the best practice guide, also published on the PRISM web site (January 2004)